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Cheering Palestinians in Ramallah hold flags and a picture of President Abbas after his return from the UN

## PALESTINIAN UN MEMBERSHIP APPLICATION

On 25th September thousands of Palestinians gathered in the centre of Ramallah, the largest city in the West Bank. The crowds cheered Mahmoud Abbas, the president of the Palestinian Authority (PA) on his return from the USA. Two days earlier he had made an historic request during an important United Nations (UN) meeting.

Each year, in September, the UN holds a large meeting called the General Assembly at its headquarters in New York City, in the USA. The UN has 193 member countries. It is not unusual for the leaders of at least 100 member countries to attend the General Assembly. Each is allowed to make a 15-minute speech.

The PA is not a full member of the UN. Instead it is a 'non-state entity with observer status'. This means its leader may attend and speak at UN meetings but not vote on anything.

During Mr Abbas's General Assembly speech he demanded that the UN give the PA statehood, or recognise it as a separate country. Later he handed an official membership application to Ban Ki-moon, the leader, or Secretary General, of the UN.

Barack Obama, the president of the USA, together with a group called the Quartet, had tried to persuade Mr Abbas not to do this. The Quartet represents the USA, Russia, the UN, and the European Union (EU). It is trying to solve the problems between the Palestinians and Israel. Tony Blair, a former prime minister of the UK, leads the Quartet.

Mr Obama insisted Mr Abbas's application would ruin the chances of arranging a peace agreement between the Palestinians and Israel. Yet Mr Abbas argued that peace talks, which first started with Israel over 20 years ago, have made no progress.

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The conflict between Israel and the Palestinians has been going on for over 60 years. In 1948 the USA and the UN helped to set up a new state, Israel, in a region of the Middle East called Palestine. The new state, which included half of the city of Jerusalem, was to be a homeland for Jewish people. Many Jews living in Europe, who had lost their homes and many members of their families during the Second World War (1939 – 1945), decided to move there.

Many Palestinians were forced to leave their homes and move to refugee camps in nearby countries. The formation of the state of Israel meant Jewish people had been given their own country. However, the Palestinians were left without one. Other Arab countries disagreed with what had happened.

Wars broke out between Israel and the surrounding Arab countries in 1967 and 1973. Israel, supported by the USA, won them easily. It captured the Golan Heights from Syria, the West Bank and the other half of Jerusalem. It also occupied the Sinai Desert, but later handed it back to Egypt.

The PA was formed after peace talks in 1994. It is two unconnected Palestinian areas called the Gaza Strip and the West Bank. The setup of the PA allowed the Palestinians to govern themselves. Yet it is still not a separate country, and it didn't solve the problem. Since 1994 fighting has frequently broken out between Palestinian militant fighters and Israeli troops.

Since capturing the West Bank in 1967 Israel has built villages, or settlements, there. Now around 500,000 Israelis live in West Bank settlements. President Abbas insists the Israelis must leave all these settlements as part of any peace deal.

He also says the families of Palestinians forced to leave their homes in 1948 should be allowed to return.

The PA has two main political groups, which often disagree. Fatah is led by Mr Abbas. It has been willing to discuss peace with Israel. Hamas, the other group, will not. Now Hamas runs the Gaza Strip and Fatah controls the West Bank. Some areas of the West Bank are still occupied by Israel.



Soon after Mr Abbas spoke at the UN General Assembly, Benjamin Netanyahu, Israel's prime minister, made his 15-minute speech. He said the Palestinians must recognise that Israel is a Jewish state with the right to exist, before any peace treaty could be signed.

Most people agree there must be a 'two-state solution' to bring peace. This means the land would be divided between Israel and a new state of Palestine. But there are many difficult problems to solve. These include where the borders will be, how to include Hamas, and what will happen to Jerusalem. The Palestinians want the eastern part of Jerusalem to be their capital city.

The USA is Israel's main supporter. It has helped to arrange all previous peace talks between the Palestinians and Israel. People who study American politics say it's unlikely a president who does not support Israel would ever be elected in the USA. This, they say, is partly because the government is influenced by a group of important and senior Jewish Americans who support Israel. This group is sometimes nicknamed the 'Jewish **Lobby**'.

The PA's application to become the 194th member of the UN is unlikely to succeed. The 15 UN member countries who are currently part of the UN's Security Council will have to vote on it. Five of these are permanent members: the USA, China, Russia, France and the UK. Each permanent member is allowed to veto, or block, votes. Mr Obama has already said the USA would veto the PA's application. He insists the only way to solve the problem is for the PA and Israel to restart peace talks.

If the PA were ever to become a full UN member, it would get certain rights. This would mean the PA would be able to accuse Israel of illegally occupying parts of the West Bank. A legal challenge such as this would have to be held in the International Criminal Court, in The Hague, in The Netherlands. ■

## SUNSPOT ACTIVITY

A huge string, or group, of sunspots has been moving across the surface of the Sun and causing some interesting effects on the Earth.

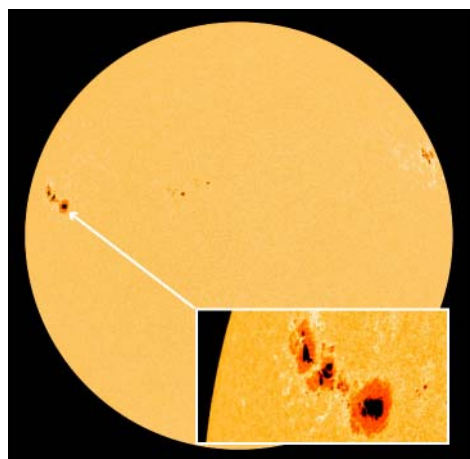
Scientists label groups of sunspots with numbers. This group is one of the largest for many years. It is called Active Region (AR) 1302.

The visible surface of the Sun is very hot, but it is not all the same temperature. Cooler parts appear as dark patches known as sunspots. These usually occur in pairs or groups. Sunspots are caused by magnetic activity.

Scientists began numbering sunspots in 1972. They were discovered to increase and decrease in 11-year cycles. We are now moving towards the middle of a cycle, which is expected to be in 2014, when there will be a greater number of sunspots.

Sunspots can get bigger and smaller as they slowly move across the surface of the Sun. The AR 1302 group is estimated to be about 100,000 kilometres (62,000 miles) across – several times bigger than the Earth.

Solar flares are often associated with sunspots. These flares are sudden bursts of energy that erupt from the surface of the Sun. When many solar flares all happen together it's called a solar storm.



Position of AR 1302 on the surface of the Sun

During a solar storm, the Sun throws out particles that carry electrical charges. These can travel through space towards the Earth. The electrical charges can interfere with power grids and disrupt satellite communication systems. Even things such as mobile phones, cash

machines and satellite navigation systems may not work properly.

AR 1302 produced a large solar flare on 24th September. However, as the sunspots were not directly facing the Earth at the time the flares did not cause any major disruption.

Solar flares help to create the northern lights, also known as the *aurora borealis*. The solar flares release particles, or atoms, into space. The northern lights appear when these atoms, travelling towards the Earth, meet its magnetic field. The magnetic field ionises, or 'excites', the storm of atoms. This increases the energy the atoms contain, which is then released in the form of light.

The *aurora borealis* is visible as a 'curtain' of coloured light that shimmers and moves in the night sky over very northern parts of the northern hemisphere. However, when large sunspots such as AR 1302 release solar flares, the *aurora borealis* can be seen much further south than usual. ■

## PUTIN TO RETURN

On 23rd September Dmitry Medvedev, the president of Russia, announced he will not be standing for re-election. The next presidential election will take place in March 2012. Instead, Mr Medvedev said, Vladimir Putin will be standing for election. Mr Putin is the country's prime minister and was president from 2000 to 2008.

Mr Medvedev's announcement was made at a meeting of the United Russia political party. Both Mr Medvedev and Mr Putin are members. This party is the country's largest, as it has well over half of the seats in the Duma, the Russian parliament. At the same meeting Mr

## NewsCAST

**EXPENSIVE BISCUIT** — What are your favourite biscuits? How much would you pay to buy just one of them? One person has just spent £1,250 (US\$1,940) on a single one! The 100-year-old biscuit was recently sold in an auction. It had been discovered in a hut in the Antarctic, which was used by the polar explorer Ernest Shackleton (1874 – 1922). The biscuit was one of many taken on Shackleton's 1907 to 1909 polar expedition. At the time these types of biscuit were specially made for polar explorers. They contained carbohydrates and milk protein to help the men to survive the freezing temperatures.

Putin said Mr Medvedev will become prime minister when his term as president ends next year.

When Mr Putin was elected president in 2000 Russia had many problems. The country's economy had difficulties and many Russians were angry their once-powerful country had become weak. By bringing in changes and improving the economy, Mr Putin soon became a very popular leader and was easily re-elected in 2004.

The Russian constitution, or rules by which the country is governed, said a president may be elected for only two four-year terms in a row. Many believed Mr Putin wanted to stay on as president for longer. In the end, he selected Mr Medvedev, who was not well known, as United Russia's candidate for the presidential election.

With Mr Putin's support Mr Medvedev won the 2008 election easily. Mr Putin then became prime minister. Many people believed Mr



Medvedev was not really in charge, and that Mr Putin was still running the country. Mr Medvedev denied this. He insisted he was not taking orders from Mr Putin.

Some hoped that Mr Medvedev would do something to control or stop the large criminal gangs, or [mafia](#), in the country, which Mr Putin didn't do anything about during his time as president. In recent years Mr Medvedev has made some decisions that seemed the opposite of what Mr Putin would have done. Many people therefore predicted the two men would compete against each other in next year's presidential election.

After hearing Mr Medvedev's announcement, most people now think the two men must have agreed to swap jobs many years ago. If this is true, they say, it would mean Mr Medvedev was just 'holding' the position of president until Mr Putin could return.



Vladimir Putin and Dmitry Medvedev

In a democracy, a country's people elect their leaders. The leaders' decision to swap jobs, say critics, shows Russia is becoming less democratic. They believe elections are now arranged so United Russia wins. They also accuse Mr Putin of preventing demonstrations by other political parties and of making sure television and newspaper reporters do not criticise him.

Many Russians, though, admire Mr Putin and he is certain to be

elected president again next year. Recently, the Russian constitution was changed so one term as president lasts for six years, not four. Mr Putin could therefore be president for another 12 years. If he decides to do this he will be 71 years old when his second six-year term comes to an end in 2024. ■

## NEW SHARK SANCTUARY

The government of the Marshall Islands has announced plans to create the world's largest shark sanctuary. Within this area of the Pacific Ocean it will now be illegal to catch sharks. Buying or selling items that contain products made from the bodies of sharks will also be illegal.

The Marshall Islands are made up of many coral atolls and a few islands spread over a wide area of the Pacific Ocean. They have a total population of about 68,000. Around a quarter of the people live on Majuro, a coral atoll which is also the capital city. The parliament is known as the Nitijela.

The area within which sharks will now be protected is the sea that surrounds all of the islands and atolls. Added together, the area comes to roughly two million square kilometres (750,000 square miles). This is about four times the size of the state of California, in the USA, or eight times as big as the UK.

Some reports say over the last 20 years the number of sharks has fallen by as much as 90%. Sharks are caught for their fins, their meat, and oil made from their livers. Sharks grow slowly and don't [reproduce](#) very often, so it can take a very long time for shark populations to increase.

Experts say around 38 million sharks were killed each year between

1996 and 2000 for their fins. Shark fin soup is a popular dish in many Asian countries, especially China. The soup is made from the fins of certain types of sharks such as reef sharks. Often a fisherman will catch a shark, cut off its fin and then throw the body back into the sea. This is known as shark-finning.



Reef shark

Marshall Islands officials say in future anyone caught with a shark fin will have to pay a fine of US\$200,000 (£130,000). A type of fishing equipment called wire leaders has also been banned. These are used for catching other fish, but sharks often get caught up in them. The new rules say any shark caught accidentally must be immediately released.

Some people claim protecting sharks has an economic advantage, or can help to make governments money. Tourists visit coral islands such as the Marshall Islands to dive and swim with reef sharks and fish species. So it is good for the economy to have lots of sharks for the tourists to see. It's even been calculated that one reef shark is worth about US\$1.9 million (£1.2 million) in tourism over its lifetime. A shark fin can be sold for about US\$108 (£70). By these calculations, the shark is worth 17,000 times more if it is alive.

Recently several other countries including Honduras, Mexico and the Maldives have set up shark protection areas. ■

## FASTER THAN THE SPEED OF LIGHT?

by Anna Grayson

Scientists at CERN (the European Organisation for Nuclear Research), in Switzerland, made an unexpected announcement on 23rd September. They say they have found evidence that tiny particles called neutrinos can travel faster than the speed of light. The scientists are so surprised with the results of their experiments that they have asked other scientists around the world to check their work, to make sure they haven't made a mistake.

The speed of light is roughly 300,000 kilometres per second. It's always been thought of as the fastest anything can go – nature's own speed limit. The letter  $c$  in Albert Einstein's famous equation  $E = mc^2$  represents the speed of light. Einstein (1879 – 1955) was a German-born scientist, who many describe as the father of modern physics. If neutrinos have really gone faster than the speed of light, all of modern physics will have to be revised!

Neutrinos are very small particles, much smaller than an atom. They are about the same size as electrons but have almost no mass. And unlike electrons, they have no charge. Their name means 'little neutral one'.

The Universe is full of neutrinos. The Sun sends out streams of them into space and towards the Earth. Neutrinos can pass through everything, including solid rock, without being noticed and without bumping into anything.

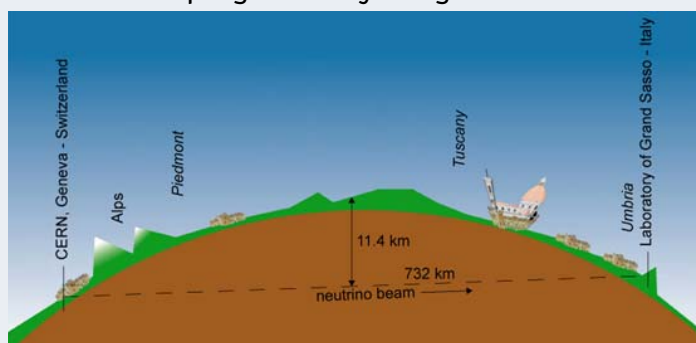


Diagram of the 'CERN beam of neutrinos' experiment

In the CERN experiment, the scientists fired a beam of neutrinos from Geneva, in Switzerland, towards an underground laboratory in Gran Sasso, in Umbria, in Italy. The beam travelled through rocks under the Alps Mountains, and the Italian regions of Piedmont and Tuscany – a distance of 732 kilometres (455 miles).

The beam of neutrinos took 0.0024 seconds to get there. This was 0.00000006 seconds (or 60 billionths of a second) faster than light would take to travel the same distance. The scientists repeated the experiment 15,000 times over three years, but still got the same result. So it seems the neutrinos travelled faster than the speed of light.

If this were true, it would suggest our understanding of the physics of the Universe is incorrect.

This would not be the first time physics has been turned upside down. The British scientist Isaac Newton (1642 – 1727) was the original founder of physics. He worked out laws, or rules, about how objects around us move, and how they interact when they hit each other. Yet two hundred years later, Einstein discovered that these laws did not work on the very large scale of the Universe or the very small scale of the atom.

A few scientists say the neutrinos are indeed behaving in a way that's new to science. It could even be that there are other [dimensions](#) or parallel universes that we don't know about. Could the neutrinos be using one of these as a shortcut?

Another explanation for the results is that the scientists got something wrong. Their results could be what's known as experimental error. To reduce the chance of experimental error, scientists always check and double-check their calculations. They repeat experiments many times. The CERN scientists have done this, but keep getting the same result. One possibility is that, without realising it, the scientists are making the same error every time they do the experiment. This is called [systematic](#) experimental error.

The only way to solve the neutrino mystery is for other scientists to examine the results and to try to repeat the experiment. This is how science works. For new discoveries to be proved, other scientists must be able to repeat experiments, check the observations, and get the same results. This is what the CERN scientists have now asked others to do. So we will have to wait for this to happen before we know whether the laws of modern physics will have to be revised.

## CHINA'S SKY PALACE

The first module, or part, of China's new space station was launched on 29th September. It's been named Tiangong, which means 'heavenly palace' or 'sky palace'.

The module was sent into space on board a large powerful rocket. Once it reached the correct height the rocket fell away. The first part of the space station, called Tiangong-1, is now in orbit 350 kilometres (220 miles) above the Earth. There is nobody inside it.

China has started its space programme many years after the USA and Russia began theirs. Yet it has been catching up quickly. It launched its first manned space flight in 2003. Two years later another manned space mission took place with two taikonauts – the Chinese name for astronauts or cosmonauts – on board.

### NEWSCAST

**JELLYFISH STOPS SWIMMER** — For most of us, the distance between Cuba and the state of Florida, in the USA – about 166 kilometres (102 miles) – would be enough to put us off swimming it! Yet this wasn't the case for 62-year-old marathon swimmer Diana Nyad, who had a different reason to stop. After only a few hours, a venomous jellyfish stung her. For a while she tried to carry on swimming, even though the venom began to paralyse her muscles. Eventually she was forced to give up after more stings to her arms and face. This was the second time the marathon swimmer had tried to swim from Cuba to Florida.



In 2008, three taikonauts were sent into space and one completed a 14-minute space walk.



Artist's impression of Tiangong-1

Other parts or modules will be added to China's Tiangong space station over a ten-year period. A crew capsule will be launched in November. It will not have any taikonauts on board but will be used to test rendezvous and docking procedures with Tiangong-1. Rendezvous is a French word that many people use to describe meeting up in a prearranged place. Docking is when two space capsules meet and join together in space.

Manned missions are expected to start next year. Much of the space technology China is using is thought to be based on Russian designs.

When Tiangong is completed, it will be about one sixth of the size of the International Space Station (ISS). The ISS has been orbiting the Earth for 13 years. It is a joint project built by the USA, Russia, Canada, Brazil, and the 11 member countries of the European Space Agency (ESA).

In the past the USA tried to get China to join the ISS project, but China decided to build its own space station. China has also invited scientists from other countries to take part in its space station project. Eventually the Tiangong space station is expected to have three taikonauts living in it. The ISS normally has six or more astronauts on board.

Recently, the USA has decided to end its space shuttle programme. So for the next few years the only way to travel to or back from the ISS will be on Russian spacecraft. China, with its new space station, is expected to become a world leader in space exploration in the near future. It has announced plans to send an unmanned spacecraft to Mars between 2014 and 2033, and possibly a manned mission to the planet within the next 50 years. ■

## MAID RULING IN HONG KONG

On 30th September a court in Hong Kong made an announcement that surprised many people. It said the city must change its rule that stops foreign maids working in Hong Kong from being able to become permanent residents.

From 1843 to 1997 Hong Kong was a British colony. China had also leased additional land, called the New Territories, to Britain in 1898. The lease was for 99 years.

The UK agreed to hand back both Hong Kong and the New Territories to China when the lease came to an end on 30th June 1997. In the years leading up to this, UK and Chinese officials discussed how Hong Kong would be governed after the handover. It was decided that most of its laws would remain the same.

One Hong Kong law says people from other countries may apply to become permanent residents after living and working in Hong Kong for seven years. This means they do not need a visa or permit to live, work and remain in the city.

Over 250,000 maids or domestic workers from other countries (often known as amahs) work in Hong Kong. Nearly all are women, and



most come from the Philippines or Indonesia. Unlike other people from different countries these workers are not able to choose to become permanent residents after they have been in Hong Kong for seven years.

Domestic workers clean and cook for families and look after young children. They have one day off, usually Sunday, each week and must be paid at least HK\$3,740 (£312) a month. Most maids send much of their money back to their families in their home countries.

All foreign domestic workers must have visas to work in Hong Kong. If their employment with one family ends, they must find another one to work for or their visas will be taken away.



Foreign maids in Hong Kong on a Sunday

The court said Hong Kong's laws mean maids should have the same rights as other foreign workers, and be able to become permanent residents after seven years if they want to. Those that did would then be allowed to look for other types of work, and apply to live in government-owned flats. It would also be possible for their families to come and join them.

Those who believe foreign maids are **discriminated** against were pleased with the court's ruling. It's thought that about 117,000 of the foreign domestic workers have been in Hong Kong for at least seven years. However, not all of them would choose to become permanent

residents. Some would prefer to return to their own countries instead.

Hong Kong is one of the world's most crowded cities. Its population is about seven million. Those who disagree with the court's ruling say it could lead to a population increase of around 500,000 people. Some predict China's government will now order the Hong Kong court to change its ruling. ■

## ELECTRIC CAR SHARING

Paris, the capital city of France, launched the world's first self-drive electric car-sharing **scheme** on 2nd October. Called Autolib, the system will be tested for the next two months with 60 cars. If it is a success, the number of cars will be increased to 250 at the beginning of December.

Paris has had a bicycle sharing scheme since 2007. It now has 20,000 bikes, which can be picked up and left at over 1,200 bicycle stations. The minimum price for using the bikes is €1.00 (£0.86) for 30 minutes. The bicycle-sharing scheme is called Vélib (short for vélo libre or vélo liberté – which means 'free bicycle', or 'bicycle freedom'). This is how the electric car scheme got the name Autolib.

Other cities, such as New York, in the USA, and some in The Netherlands, have car-sharing schemes, but these are not electric cars. The Paris electric cars, which seat four people, have been nicknamed 'bubble cars'. Officially they are called Bluecars, although they are silver in colour.

Vincent Bolloré has set up the Autolib scheme. He is a well-known businessman who is friends with Nicholas Sarkozy, the president of

France. Many people say the idea, though, was Bertrand Delanoë's. He is the mayor of Paris and started the bicycle scheme four years ago.



Bluecars in Paris

One of the main reasons Mr Bolloré's company was chosen to set up and run the scheme is that his company makes the batteries that Bluecars use. The cars can travel for about 250 kilometres (155 miles) before their batteries need recharging.

The cars are fitted with GPS. This means that Autolib knows where all the cars are. If a driver has an accident, he or she must press a blue button inside the car. This alerts the Autolib control room.

Paris, like many cities, has big traffic jams. The mayor and Mr Bolloré predict the scheme will reduce the amount of traffic. They say people living in the city will decide they no longer need to pay for the upkeep of owning a car and will use the Bluecars instead. And because they are electric, the cars produce much less pollution than cars that use petrol or diesel.

Autolib has daily, weekly or monthly memberships. People who want to join must have a credit card, driver's licence and identification, or ID, card. Membership prices start at €10.00 (£8.60) and go up to €145.00 (£125). Drivers then pay extra depending on for how long they use the car.

Mr Bolloré hopes there will be between three and five thousand

Bluecars in Paris by 2013 and at least 1,000 recharging stations where the cars can be picked up and dropped off. Officials say cities in other countries are interested in copying the electric car-sharing scheme if the trial is a success. ▣

## ELECTION IN ZAMBIA

Michael Sata officially became president of Zambia on 23rd September. In an election held three days earlier, Mr Sata got 45% of the votes and Rupiah Banda 35%. Mr Banda had been president for the last four years.

Zambia is a former British colony that became an independent country in 1964. This is the fourth time Mr Sata had stood for election as president. At the last election, in 2008, he lost to Mr Banda by only 35,000 votes, out of a total of about five million.



*New president of Zambia, Michael Sata*

Zambia has large deposits of minerals, including copper, coal, and cobalt, which is used in batteries. Over the last ten years many big companies from China have invested a lot of money in Zambia. Chinese companies now run most of the mines in the country. Much of what is produced, especially copper, is sent to China. Around 300 Chinese companies operate in Zambia. Recently many Chinese shops have opened in Lusaka, the capital city.

In the past Mr Sata has been very critical of Chinese companies in Zambia. He accused them of using Chinese people to do jobs that could be done by Zambians. He also claimed the Chinese mining companies treated Zambian employees badly and were not strict enough about safety procedures.

Last year, 13 workers protesting about conditions at a Chinese-owned coal mine in Zambia were shot and wounded. Mine managers were charged with the shootings. Yet the charges were dropped and instead the mining company paid some money to the injured workers.

In the past China said it would stop dealing with Zambia if Mr Sata were ever elected as president. However, Mr Sata now says the money Chinese companies bring to Zambia is important. But he also thinks that all Zambians should have a share of the money made from their country's mineral resources. Many people believe this is one of the main reasons he got the most votes.

Once Mr Sata had officially become president, he announced that more of the money China brings to the country should go to help the poorer people in Zambia. He added that Chinese companies must agree to obey Zambia's laws. After the election the Chinese ambassador in Zambia visited Mr Sata with a message of congratulations from China's leaders.

Recently there has been violence in some African countries when leaders have lost elections and then refused to hand over power. One example is Côte d'Ivoire (Ivory Coast) where fighting started after a ruling president lost the election. Many people were pleased this did not happen in Zambia. They praised Mr Banda, who said the election had

been fair, for peacefully handing over power even though his party had ruled the country for the last 20 years. ▣

## WHY DO WE YAWN?

Why do people yawn? This question has puzzled scientists for many years. Recently researchers in the USA announced they think they may have found the answer: it is to cool down our brains.



*Yawning baby*

One unusual thing about yawning is that it seems to be 'contagious'. This means we can 'catch' yawning from others. If we see someone yawn, we are quite likely to yawn ourselves. Studies have even shown how dogs that saw humans yawning often started yawning as well! Even reading or hearing about the subject can make us feel the need to yawn. You may not be able to read this article without yawning yourself.

There are lots of ideas about why humans yawn. Most people think it is a sign of being tired. Others believe it has something to do with being bored. Another idea is that we yawn because we need more oxygen. By yawning we take in more air, which increases the amount of oxygen in our blood. Our muscles and organs all need oxygen to work, so this makes sense. If our brain or muscles are feeling sluggish, or tired, a boost of oxygen may be



## NewsCAST

**ORANGE CROCODILE** — Keepers at an aquarium in Australia thought one of their crocodiles was ill. Although it was behaving normally, its skin had turned bright orange. Nobody knew what was wrong. Eventually someone noticed the crocodile had chewed and damaged a filter through which all the water coming into its enclosure passes. The keepers think a red algae and fallen leaves, which would normally have been stopped by the filter, got into the water. It was this that caused the crocodile's skin to turn orange. Now the filter is working again the keepers say the crocodile should slowly return to its normal colour.

just what they need to start working properly again.

To try to work out why we yawn the researchers say they looked to computers for **inspiration**. If a computer is doing many different things or functions all at the same time, its processor can become hotter. Most computers have fans to keep them cool. With some, you can even hear the computer's fan speed up when it becomes too hot. Some people put small fans under their computers to keep the processors cool.

Our brains, say the researchers, are a lot like computer processors. They need to be cool to work properly. Yawning, or opening our mouths and taking in a blast of air, instantly lowers the temperature of our brains. In other words, we yawn to cool down our brains.

One hundred and sixty volunteers took part in the experiment. Two groups of 80 people were shown pictures of people yawning. One group was tested in the winter and

the other in the summer. In the winter 45% of the group yawned, while in the summer less than 25% did.

The study was done in the state of Arizona, where it is cool in the winter and very hot in the summer. The researchers say our bodies can sense when the air is warm and yawning would not help to cool our brains.

So when you next start yawning and your parents or a friend say you need to get some sleep, you can tell them you're not tired – you're just cooling down your brain. ■

## ONLINE DEAD SEA SCROLLS

On 26th September some of the world-famous Dead Sea Scrolls were made accessible on the internet for the first time.

The Dead Sea Scrolls are a large collection of holy texts or documents that were written on **parchement** and **papyrus** around 2,000 years ago. Shepherds discovered the scrolls between 1947 and 1956. They found them in caves close to the shore of the Dead Sea, in what is now known as the West Bank. Many historians describe the scrolls as the greatest historical discovery of the 20th century.

Scholars think most of the scrolls were written between 100 BC and 50 AD. They contain stories that appear in the Hebrew, or Jewish, Bible and the two parts, the Old and New Testaments, of the Christian Bible. Some scrolls include other Jewish writings. The scrolls are 1,000 years older than any other known Biblical documents or manuscripts.

The scrolls were written in Hebrew, Greek and Aramaic, a language once widely used in what is now called the Middle East. Most Biblical scholars think the scrolls

were written by a Jewish sect or group called the Essenes, which was based close to the caves where they were found. Yet some think the scrolls were originally held in the Temple in the city of Jerusalem, and hidden in the caves by priests when the Romans destroyed Jerusalem in 70 AD.

The Christian Bible – especially the New Testament, which is about the life of Jesus – is known to have been altered over the years. This may have happened when it was translated into different languages or because words and sentences were added at a later date. When the scrolls were first discovered, it was predicted they would show that several stories in the modern Bible were very different from the originals. Yet so far this has not happened.



Part of the Great Isaiah Scroll

Most of the scrolls were in tiny bits and pieces when they were discovered. It has taken historians many years to try to put them back together and translate all the text. The scrolls are kept in the Israel Museum in Jerusalem. They are displayed in sections, which are changed every four months so each scroll is not exposed to the light for too long.

Making the scrolls accessible on the internet is a joint project between the Israel Museum and the Google Company. Currently five scrolls can be seen, including the Great Isaiah Scroll. You can magnify parts of the

text, and a translation also appears on the screen. The Museum hopes all the Dead Sea Scrolls will be accessible online within the next few years. ■

## FALLING SATELLITES

At around midnight between 23rd and 24th September, parts of a NASA satellite crashed into the Pacific Ocean. This ended weeks of guessing where and when the 'runaway' satellite, as it had become known, would come down.



Artist's impression of the UARS (NASA)

NASA (National Aeronautical and Space Administration) launched the satellite in 1991. The Upper Atmosphere Research Satellite (UARS) was designed to study and take measurements of the Earth's atmosphere and the amount of visible and ultra-violet light coming from the Sun. The length of time it was expected to be used, or its mission, was three years. Yet some of its instruments continued to work after this. The satellite was finally switched off, or decommissioned, in 2005. It then became 'orbital debris', or space junk.

Space junk is a term used to describe bits of old rockets and satellites that orbit the Earth. NASA says more than 22,000 man-made objects at least ten centimetres (four inches) wide currently orbit the Earth.

The larger bits even include tools lost by astronauts. There are many millions of smaller pieces, such as tiny flakes of paint. Of all the objects orbiting the Earth, only about 900 are working satellites.

Most of these left-over objects or space junk go around the Earth at a height of about 800 kilometres (500 miles). They can continue to orbit for many years. Yet they are affected by what's known as orbital decay. This means their orbit gradually gets lower. Eventually they get to a height where the gravitational pull from the planet is strong enough to cause them to fall back to the Earth.

Most pieces of space junk that fall into the Earth's upper atmosphere burn up before they get near the ground. The high-speed fall creates a lot of friction, which heats up the object. Yet if it is big enough, an object may not have completely burnt up by the time it reaches the ground.

UARS was 10.6 metres (35 feet) long and five metres (15 feet) in diameter, and weighed about 6,000 kilograms (13,000 pounds). NASA predicted it would break up into many smaller bits. But 26 pieces would be big enough to not completely burn up as they fell through the atmosphere. It was difficult to predict where these larger bits would land.

Around 70% of the surface of the Earth is covered by sea and many land areas are uninhabited by people. NASA said there was little danger of a piece landing on somebody. It calculated the chance of one person in the whole world being hit was about one in 3,200.

NASA said anyone who saw bits of the satellite fall to the ground should not touch them. The largest pieces eventually fell into the Pacific Ocean, far from land, over an 800

kilometre (500 mile) area. Nobody saw them crash into the sea.

At the end of September Germany's space agency warned that one of its astronomy satellites is expected to fall to the Earth at the end of October or beginning of November. Even though the satellite is larger than UARS, and will have a greater number of bigger pieces, there is still only a one in 2,000 chance of any one person in the world being hit. ■

## USEFUL NEW MATERIAL

Scientists have developed a new material inspired by an unusual source: [carnivorous](#) plants. They have named their invention SLIPS, which stands for Slippery Liquid-Infused [Porous](#) Surface.

The scientists wanted to find out if they could copy, or mimic, pitcher plants. These have a deep bowl-shaped

## NEWSCAST

**TAX DRUMMERS** — Governments charge people taxes – amounts we have to pay for services such as roads, schools, hospitals and the police. Some people, though, try to avoid paying tax. Now officials in Bangalore, in India, are using a new way of getting people to pay their taxes – embarrassment. Officials say some people in Bangalore have refused to pay for several years. So they arranged for drummers to stand outside these people's offices and houses. The drummers keep beating their drums loudly. Everyone then knows who hasn't paid their taxes. The government says the only way to get rid of the drummers is for the people to pay what they owe.

part into which small creatures such as spiders and insects can fall. The plants usually have some way of attracting insects, such as bright colours or sweet-scented nectar.

The bowl contains a liquid that breaks down, or dissolves, the insect's body. Scientists say the plants do this to get **nutrients**. Pitcher plants are often found in soil low in nutrients such as nitrogen, which plants need to grow. So the nutrients pitcher plants cannot get through their roots come from the insects they digest.

The pitcher, or bowl, part of the plant has steep sides, which are so slippery that insects cannot climb out. This was the part of the plant that the scientists were interested in.

If you look at the sides of a pitcher plant's bowl under a microscope they are actually bumpy and not smooth. A super-thin layer of water and nectar 'sticks' to these bumps and creates a slippery film. This stops insects from being able to get out of the bowl.



*Pitcher plant*

The scientists used nanotechnology to recreate the sides of the pitcher plant's bowl. Nanotechnology is working with substances at the level of their molecules and atoms. The scientists made a mat of nanofibres and then, copying the pitcher plant, coated it with a liquid film. They discovered that anything – including other liquids – that lands on the mat just slides off.

The new material has been described as omniphobic. Omni means everything. Phobic means to avoid something (we often use the word 'phobia' to describe a fear of something). So this description means the material avoids, or repels, everything.

Tests are now being done on the new material or SLIPS to see how it works in both very hot and very cold temperatures. There are several possible uses for SLIPS. For instance, it could be used inside machinery to stop moving parts from sticking together, or even to coat kitchen tools and appliances to make them easier to clean. ▣

## LAST BULLFIGHT IN CATALONIA

The 600-year-old tradition of bullfighting in one part of Spain has come to an end.

Last July the government of the Spanish region Catalonia voted to ban bullfighting. The ban starts at the beginning of 2012. The bullfighting season lasts from March to October and the last bullfight in Catalonia took place on 25th September.

Bullfighting is popular in Spain, Portugal, Mexico, several South American countries, and in parts of the south of France. A bullfighter is known as a torero or matador. He performs a series of movements to lead or anger a bull in a large arena surrounded by spectators. In some bullfights, the animals are stabbed so they lose blood and become weak, while in others the bulls are killed. There are other types of bullfight where the bull is not hurt.

In Spain bullfights are thought of as a form of art or culture, and include traditional Spanish music. The most successful bullfighters wear

**elaborately** decorated costumes and are very famous.

However, many people say bullfighting is cruel and that it is wrong that animals are hurt or killed for entertainment. Yet those who support it disagree. What is more, they argue that bullfighting is a tradition that has been going on for hundreds of years.



Although Catalonia is part of Spain, many who live there think their region should be a separate country. Catalans have their own language, traditions, and regional parliament. Many Catalans want their parliament to be able to make more of the decisions that affect Catalonia. Currently the most important decisions are made by the Spanish parliament in Madrid, the capital city.

Bullfighting is not as popular in Catalonia as it is in other parts of Spain. The only place in Catalonia where the fights take place is in the city of Barcelona. Many of the spectators are tourists from other countries and not local people.

All 18,000 tickets for the last bullfight were sold long before 25th September. Three matadors took part and six bulls were killed. After the event, spectators carried the three men on their shoulders and paraded them around the arena.

Many people in other parts of Spain claim the ban in Catalonia has nothing to do with bullfighting or



cruelty. They say the regional parliament in Catalonia voted for the ban only because it wants to break away from Spain. They say in some parts of Catalonia there is a tradition where flaming torches are attached to bulls' horns before the animals are chased through the streets. It seems strange, they argue, that this tradition has not been banned.



Bullfight

Several companies that organise holidays say they are now receiving more requests from people to visit Madrid because they can still

watch bullfighting there. Catalonia is the second region in Spain to ban bullfights. The first was the Canary Islands, which stopped bullfighting 20 years ago. ■

## WOMEN GIVEN VOTE IN SAUDI ARABIA

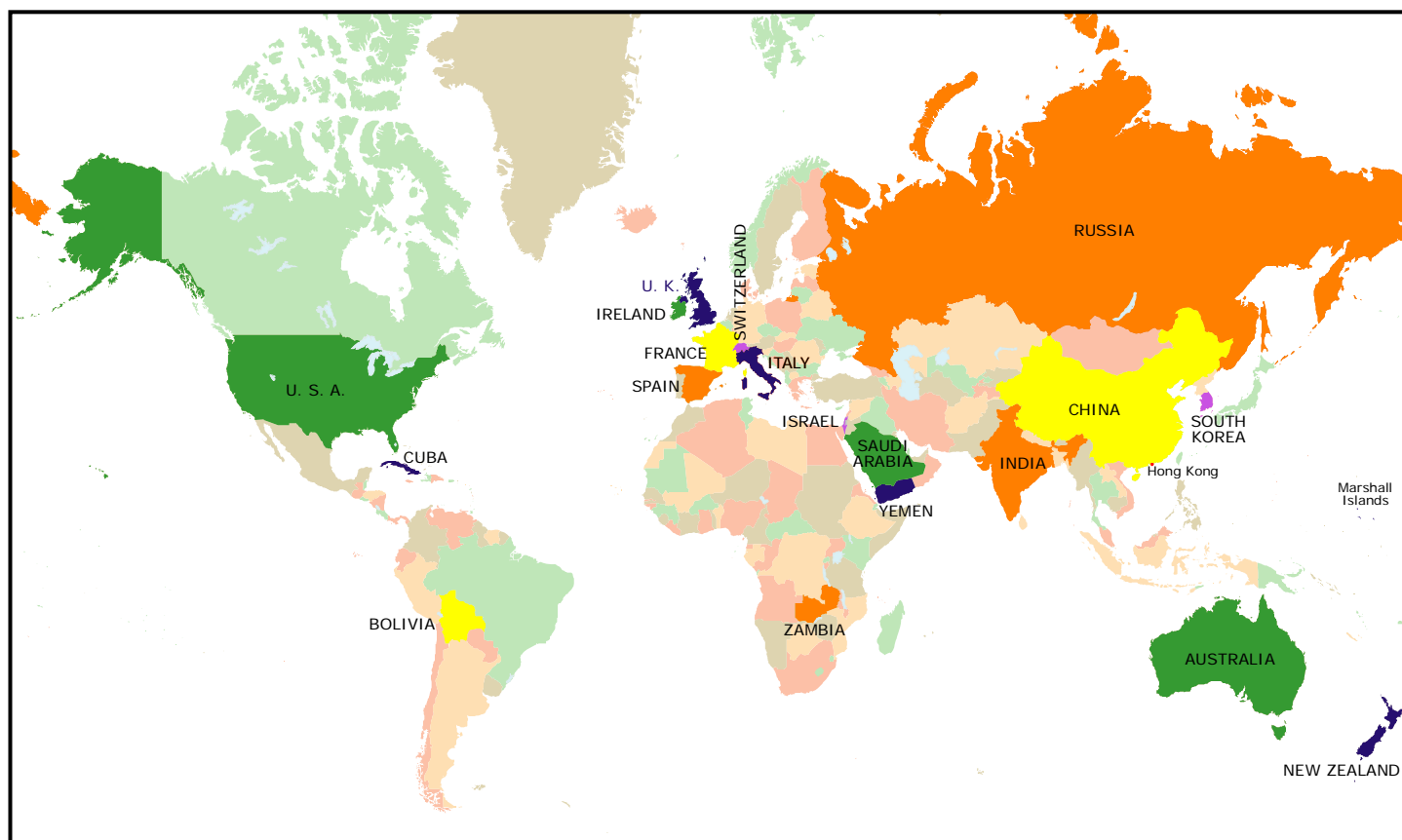
On 25th September King Abdullah of Saudi Arabia made a surprising announcement. He declared that, for the first time, women will be allowed to vote in local elections.

The right to vote and elect members of your country's government is called suffrage. Universal suffrage is a term that means all adults are allowed to vote. Most countries have had universal suffrage for many years. Today there are at least 30 countries where, if you are an adult, it is compulsory to vote.

However, in most countries universal suffrage once meant all men could vote, but it did not include women. In several countries women campaigned, or protested and demonstrated, for many years to have the same voting rights as men. These women were known as suffragists or suffragettes.

One of the very first countries in which women were given the right to vote was New Zealand in 1893. In the USA women were allowed to vote in 1920. Yet it was not until 1928 that all women above the age of 21 could vote in the UK.

Not all countries have democracies in which people can vote for different political parties in national elections. Until very recently, Saudi Arabia did not hold any elections at all. Traditionally the king runs the country with help from members of his family and some advisors, whom he appoints.



The first ever local elections in Saudi Arabia were held in 2005. Yet still half of the people chosen for these assemblies, or councils, are appointed and not elected.

The latest local elections took place on 29th September, a few days after the king's announcement. But officials said it was too late to make arrangements for women to vote straight away. They will have to wait until the next elections in 2015. At that time, as well as being allowed to vote, women may also be [candidates](#).



King Abdullah of Saudi Arabia

In Saudi Arabia women are not allowed to do certain things. A woman must have a male guardian – either a member of her family, or her husband. She needs his permission to get a job or open a bank account. Women may not mix with males who are not members of their families, so they cannot use public transport. They are not allowed to apply for a driving licence, so they cannot drive.

Although women will not be able to take part in an election for another four years King Abdullah said he may choose to appoint women to the Majlis al Shura, or Shura Council, before then. This is a national assembly of 150 advisors chosen by the king. They give advice but cannot make laws.

Many people believe King Abdullah wants to make changes to what women may and may not do in

Saudi Arabia. But he has to get the agreement of senior religious leaders, or clerics. Many of these clerics are thought to be against changing the rules about women.

Now some people say other rules about women may have to change too, such as those about driving. They argue it would be odd if a woman who is trusted to make important decisions and give opinions in the Shura Council were still not allowed to drive or go anywhere without a guardian. ■

## VALUABLE WRECK

An American exploration company, Odyssey, has announced it has found the wreck of a ship that sank in 1941. The ship was carrying a large amount of silver, which today would be worth about £155 million (US\$240 million).



SS Gairsoppa

The Steam Ship (SS) *Gairsoppa* sank in the North Atlantic Ocean off the south west coast of Ireland. The wreck is around five kilometres (three miles) below the surface. The *SS Gairsoppa* was a British merchant navy ship. Merchant ships carry goods between countries. In times of war governments would also use merchant ships to carry military supplies, equipment and soldiers.

At the time of the First World War (1914 – 1916) Britain had a

large merchant navy. During the war many of these ships were used to carry food supplies and troops from places as far away as New Zealand and Australia. Yet German submarines firing [torpedoes](#) managed to sink hundreds of them. To try to stop this from happening merchant ships began travelling in large groups called convoys. Navy warships protected these convoys. Yet many ships were still hit and sunk.

In the Second World War (1939 – 1945) a similar thing happened. German submarines sank hundreds of British merchant ships including the *SS Gairsoppa*. It had left India in December 1940 carrying iron, tea and 240 tonnes of silver. The ship was part of a group, but in the North Atlantic Ocean it was forced to leave the convoy because of bad weather and lack of fuel.

Soon afterwards it was torpedoed. The torpedo damaged the ship's radio equipment so those on board were unable to communicate or call for help. Soon after being hit, the *SS Gairsoppa* sank. Of the 85 crew members on board only one survived.

The cost of looking for the *SS Gairsoppa* and bringing any silver to the surface would be very expensive. So before finding the sunken ship the Odyssey Company made an agreement with the UK government. This agreement says 20% of any silver found is to be handed over to the UK. Odyssey is allowed to keep the rest.

Odyssey's explorers said they looked at the ship on the sea floor with a small remote-controlled submarine. The ship is upright and they say it should not be too difficult to get inside. They will not try to recover the silver until the weather gets better next spring.

Some people criticise Odyssey for making money from hunting for ‘treasure’ in shipwrecks, especially those where many crew members have lost their lives. Yet the company says without its shipwreck exploration, stories such as what happened to the *SS Gairsoppa* would be forgotten. The company argues that as well as finding treasure, it also records historical and archaeological information about shipwrecks. ■

## VERY SMART WINDOWS

Scientists in South Korea have developed windows made of a new material that may help us to save energy in our homes and offices.

Many people try to save electricity and energy by changing things in their homes. For example, they might use lightbulbs that use low amounts of electricity, or dry their washing by hanging it outside instead of putting it in an electric tumble dryer.

### NEWSCAST

**BANK MISTAKE THIEF CAUGHT** — A man has been arrested after taking advantage of a big mistake made by a bank in New Zealand. Two years ago, the bank accidentally put NZ\$10 million (£4.9 million pounds) into in the man’s bank account. He noticed the mistake before the bank did. The man quickly transferred millions of dollars into several other bank accounts and then left the country! For the last two years police from New Zealand have been trying to find him. Eventually, they managed to get the man arrested in Hong Kong as he was trying to cross the border into China.

One thing that costs money and uses a lot of energy is heating or cooling our homes. Heat can be lost from many places, such as through the ceiling or gaps in window frames. So some people put **insulation** in their roofs and fit double-glazed windows. Double-glazing is two panes of glass with a **vacuum** between them. This greatly reduces the amount of heat that can be lost through the glass.



Office windows

In countries where it gets very hot, some people have air conditioning. This is a unit that passes air through a cooling system and fans it into the rooms to cool them down. Air conditioning units use a lot of electricity.

The South Korean scientists say their invention could reduce the need for heating and cooling systems. Their windows automatically turn dark when the outside temperature is hot, and then transparent, or see-through, when it’s cold.

When it is hot in the summertime, the windows turn dark to block heat from the Sun’s rays. This means rooms stay cooler and there is less need for air conditioning and electric fans. Yet when it is cold outside in the winter, the windows become transparent and let in as much heat as possible from the Sun. So rooms get warmer and not so much heating is required.

Windows that change colour like this already exist. They are often

called ‘smart’ windows. However, many are powered by electricity, which is called being electrochromic. So they have to be switched from light to dark or dark to light and use electricity. The new windows do this automatically.

The scientists say their new smart glass is less expensive than the electrochromic type, and the switch from transparent to dark is almost instant. If this new invention does save a lot of energy, it’s likely that many people will want these windows in their homes and new buildings will all use this type of glass. ■

## CHILDREN’S ANCIENT CAVE ART

Lots of young children enjoy finger-painting – dipping their fingers in paint and using them to make pictures. Now archaeologists have discovered young children did a type of finger painting around 13,000 years ago deep underground.



Rouffignac cave entrance

The prehistoric fingerpaintings have been found in caves in Rouffignac, in France. The main cave is very famous for the ancient paintings on its rock walls. The pictures are of animals such as mammoths, bison and horses. The people who made the pictures were known as hunter-gatherers. This is the name given to people who travelled around hunting for food and collecting fruit and berries.



The main cave at Rouffignac is nicknamed the 'cave of 100 mammoths'. It was opened to tourists in 1959. Today thousands of people visit it each year to see the famous cave paintings.

It is in a much deeper part of the caves that archaeologists have discovered the finger marks. They are not really finger 'painting', because there is no colour, or pigment. The archaeologists call the marks 'fluting'. They have been made by someone placing his or her fingers in the soft clay-like substance of the walls and ceiling of the cave and then tracing shapes which, over time, have hardened. The flutings are lines, circles and a few simple animal shapes.



*Flutings on cave ceiling*

The archaeologists first realised children must have made the marks a few years ago. Some of the marks are quite high up on the walls or on the ceiling. So the archaeologists think adults must have helped the children by lifting them up or letting them sit on their shoulders. When they studied the marks closely, they saw each individual had his or her own style. They could therefore tell which marks had been made by the same person.

As part of their study the archaeologists have measured the fingertips of thousands of children of different ages. By matching these measurements to the flutings, the

archaeologists can work out how old the children who made them were. They believe the youngest was about three and the oldest seven.

The archaeologists also say the shapes of children's fingertips are slightly different depending on if they are male or female. So where the finger flutings show fingertip marks, the archaeologists can also tell whether a boy or a girl made them. The artist who made the most marks was a five-year-old girl.

One part of the cave has so many flutings the archaeologists think it may have been like a playroom. Yet they don't know why the markings were made or what, if anything, they mean. The only light the hunter-gatherers would have had in these deep underground caves would be simple fire torches. So it seems unlikely children would have been taken this far underground just for fun. ■

## ROAD PROTEST IN BOLIVIA

On 1st October a group of about 1,000 native Bolivians re-started their protest march, which had been stopped five days earlier by the police. The protesters are marching to La Paz, the capital of Bolivia.

The march is causing a lot of difficulties for Evo Morales, the president of Bolivia. The protesters are descendants of the people who originally lived in this part of South America before Bolivia became a colony of Spain. Of all the countries in South America, Bolivia has the highest number of native, or indigenous, people. They are also known as Amerindians. President Morales himself is the first Amerindian to be elected president of Bolivia.

Some time ago Mr Morales announced a plan to build a new road

across the country. It would connect with other roads that go through Brazil to the Atlantic Ocean on one side of Bolivia, and through Chile to the Pacific Ocean on the other. Bolivia has no coastline of its own so it has no access to the sea except through other countries.



*President of Bolivia, Evo Morales*

The money for the road would come from Brazil. A Brazilian company would build it. Mr Morales said the road was necessary to help to expand the country's economy.

However, the planned road would cross a protected area of forest known as Tipnis. It is home to around 50,000 indigenous people from three tribes. Many of them fear the new road will mean much of the forest will be cut down. They also suspect it will bring other Amerindian groups from different parts of the country to Tipnis and that these people will try to take over some of their lands.

In August, around 2,000 people from Tipnis began a 40-day march to La Paz as a protest. On 25th September the police used tear gas and large sticks to stop the marchers. Hundreds were arrested. Many Bolivians were shocked to see pictures on television of indigenous people from Tipnis being beaten and taken away by the police.

Soon afterwards the government minister in charge of the police said he would resign from his job. Mr Morales was accused of giving orders to

the police to attack the marchers. He denied this but said that all those arrested would be freed.



Protest march in Bolivia

The police said they had been trying to stop the protesters because another group, which supports the building of the road, was about to march towards them. Other demonstrations then started on the streets of La Paz. These demonstrators said they supported the native people and were angry about what the police had done.

Mr Morales has now temporarily halted the road-building project. He said he would arrange for a referendum, or vote in which all adults can take part, to take place in the two regions through which the road passes. If most people vote 'yes' the road will be built. If there are more 'no' votes it will not. But some people worry the vote will divide Amerindian groups and could make the problem worse.

In the meantime the indigenous protesters say they will continue their march to La Paz, a distance of 250 kilometres (155 miles). ■

## AL-QAEDA LEADER KILLED IN YEMEN

On 30th September Barack Obama, the president of the USA, announced Anwar al-Awlaki had been killed in a planned attack, in Yemen. Awlaki was the leader of an Islamic militant

group called al-Qaeda in the Arabian Peninsula (AQAP).

Awlaki was an American citizen born in the state of New Mexico, in the USA. He grew up in Yemen, but returned to America to study engineering at university. He preached at several mosques in the USA before moving to the UK. Eventually he went back to Yemen in 2006.



Anwar al-Awlaki

Al-Qaeda, which means 'the base' is the name of an Islamist terrorist group. People who belong to the group believe anything that does not match its extremist version of Islam is evil and should be stopped.

Awlaki made use of websites and email. He used the internet to find people who would be willing to attack Americans and countries that worked with the USA. Awlaki also helped to create an al-Qaeda online magazine, called *Inspire*.

Awlaki is known to have organised several plots to blow up passenger aircraft. In one, a young man from Nigeria was caught with a bomb on a plane flying to the USA on 25th December 2009. Fortunately the bomb failed to go off.

Last October Awlaki arranged for two airmail packages to be sent. Each had a printer and a few books inside, so they looked like something a student might post. However, the package also contained bombs cleverly designed to be difficult to detect with scanners.

Security services in the USA and the UK found out about the plan and intercepted the packages in the UK and Dubai. Many people would have been killed if these bombs had gone off on the planes.

Awlaki also inspired people to carry out their own attacks. In one instance he had been communicating by email with an officer in the American army. Later the officer shot and killed 13 soldiers on an army base.

The American forces may have had help from spies in Yemen or Saudi Arabia to track Awlaki down. It's likely they used satellites to follow his movements. He was killed when he was in a car far from any other people. An American drone, or unmanned aircraft, fired two missiles that both hit the car. At least two other people were killed in the car. Reports say one may have been the person who ran the *Inspire* online magazine, and the other the maker of the bombs inside the packages. ■

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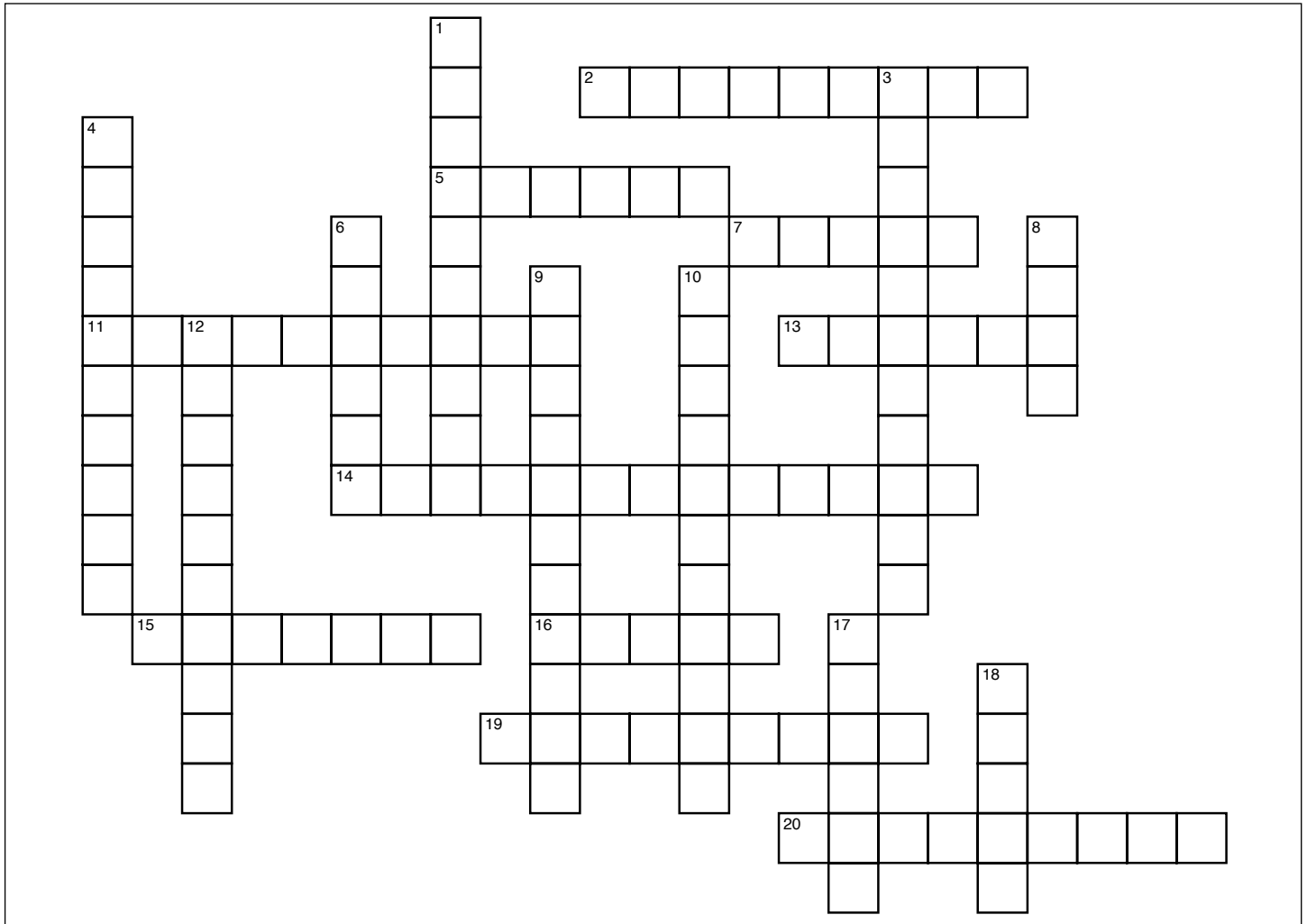
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# ISSUE 155

## GLOSSARY PUZZLE

**INSTRUCTIONS:** ① Complete the crossword. The answers are highlighted in orange in the news stories. There are 25 words highlighted and you need 20 of them to complete the crossword. ② Once you have solved the crossword go to the word search on the next page ➡



### Across

- 2 Noun** The skin of a sheep or goat prepared for writing on
- 5 Noun** Something that exists, especially independently of other things and not as part of something bigger
- 7 Noun** A group that tries to influence government policy
- 11 Noun** Something, usually a covering, used to stop heat from escaping
- 13 Adjective** Describes something that has many tiny holes, so air or a liquid can slowly pass through it
- 14 Verb** Treated people differently or unfairly
- 15 Noun** A paper-like substance used by the Ancient Egyptians, made from a plant
- 16 Noun (Plural)** Secret plans for a group of people to do something that is wrong, harmful or illegal
- 19 Verb** To have offspring or young
- 20 Noun (Plural)** Substances that provide nourishment needed for life and growth

### Down

- 1 Noun (Plural)** The measurements of something in a particular direction, for example its height, length, or width
- 3 Adverb** In a complex or fancy way
- 4 Noun (Plural)** People who want to be elected or chosen for a particular position or job
- 6 Verb** Rented, usually for a specified number of years
- 8 Noun** An official permit that allows a person to enter or leave a country
- 9 Verb** Stopped something or someone on the way to a destination
- 10 Noun** Something or someone who sets an encouraging example
- 12 Adjective** Describes something done according to a fixed plan, in a thorough and efficient way
- 17 Noun** A space from which the air has been completely removed
- 18 Noun** A criminal organisation



# ISSUE 155

## GLOSSARY PUZZLE *CONTINUED*

D I M E N S I O N S A Y F R O Q L N  
 I E O V G W H X T B I D I V N X V O  
 S S T S T N E I R T U N W O A Y A I  
 C E N P M C E T I J D N D O G E C T  
 R Y U A E H C P E X V S E K S V U A  
 I B N J M C T N L L P O R O U S U R  
 M B F J Y D R D N B Z A H O N N M I  
 I O Z E T S E E K U E N P P A H J P  
 N L P B A T Y S T L I I Z Y K H J S  
 A E O Z U O F S A N M N R Q R L F N  
 T N C Q I L W B T E I S Z Y C U P I  
 E T H U A P O I Z E L U M O V I S A  
 D S S R D R G U L Q M L K M E C Z W  
 T O S Q A O D C S E T A D I D N A C  
 U C J T Z A R T G Z C T T W M G I R  
 N P E D K F R P Z A B I L I L Y F T  
 G L Q F I Y J H E H T O R M C Z A Y  
 Y T I T N E K Q Y R L N T S J S M Z

**INSTRUCTIONS:** ③ Find 19 of the 20 crossword answers in the word search. Words can go vertically, horizontally, diagonally and back to front. ④ After finding the 19 words write down the 20th (or missing) word under the puzzle.

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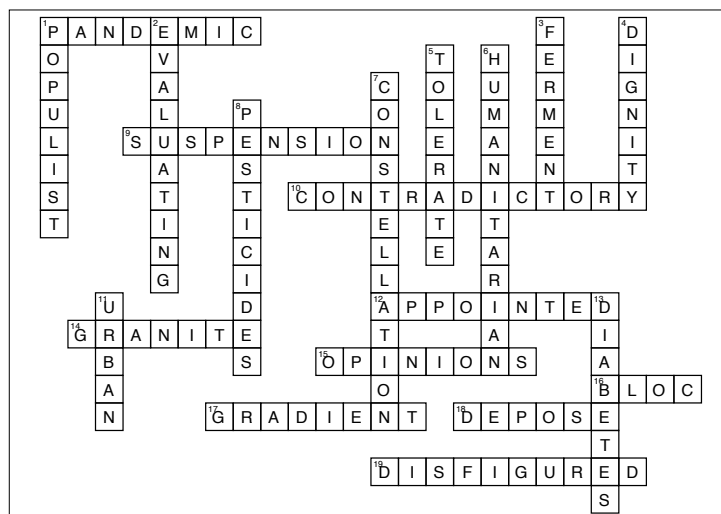


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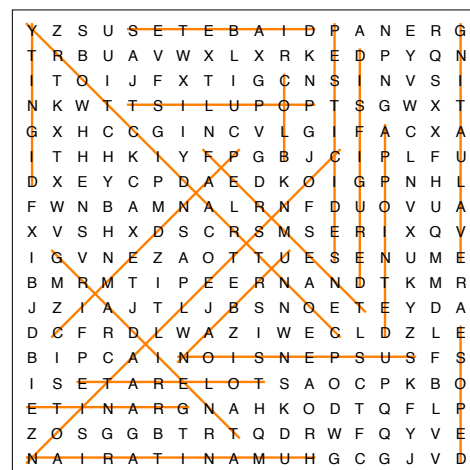
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MISSING WORD ANSWER =



ISSUE 154 ANSWERS



O P I N I O N S